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## AN OVERLAND JOURNEY.

XXVII

Carson Valley—The Sierra Nevada.  
Placerville, Cal., Aug. 1, 1859.

Though the Carson sinks in or is absorbed by the same desert with the Humboldt, a glance at its worst estate suffices to convince the traveler that the former waters by far the more hopeful region.—Large Cottonwoods dot its banks very near its mouth, and its valley, wherever moist, is easily rendered productive.—You feel that you are once more in a land where the arm of Industry need not be paralyzed by sterility, obstruction, and despair.

Still, the prevalence of drouth is here a fearful fact. No rain in Summer—that is, none that can be calculated on, none that amounts to anything—might well appal the cultivator accustomed to warm, refreshing showers throughout the growing season. We crossed, on our arid ride up the Carson, a single high plain twenty-six miles long and from six to twelve wide, which drouth alone dooms to Sage-h, sterility, and worthlessness. Two or three other plains or high intervals further up are nearly as scorched and barren. All these may be rendered most productive by irrigation, and here is the water at hand. If the new Gold Mines in this valley shall ultimately justify their present promise, a very large demand for Vegetable Food will speedily spring up here, which can only be satisfied by domestic production. The vast deserts eastward cannot meet it, the arable region about Salt Lake is at once too restricted and too distant; inland California is a dear country, and the transportation of bulky staples over the Sierra a costly operation. The time will ultimately come—it may or may not be in our day—when two or three great dams over the Carson will render the irrigation of these broad, arid plains on its banks perfectly feasible, and then this will be one of the most productive regions on earth. The vegetable food of One Million People can easily be grown here, while their cattle may be reared and fed in the mountain vales north and south of this valley. And when the best works shall have been constructed, and all the lights of science and experience brought to bear on the subject, it will be found that nearly everything that contributes to human or brute sustenance can be grown actually cheaper by the aid of irrigation than without it. As yet, we know little or nothing of the application of water to land and crops, and our ignorance causes deplorable waste and blundering. Every year henceforth will make us wiser on this head.

Twenty miles or so below Genoa, we passed "Johnston" a Chinese settlement, whose people find employment in the recently discovered Gold Mines. These mines are some eight miles northward of "Gold Canon," and are reported immensely rich. Silver and Copper are blundered with Gold in the same vein-stone. A few are making money very fast here, but these few control all the available water, and it seems impossible to introduce more. If a supply can be obtained at all, it must be at enormous cost. I have vaguely heard of a patented process or processes for separating Gold from other minerals or earths without the use of water; if there be any such process, which is not a humbug, I urge the owner of the patent to haste to Carson Valley and there make his fortune. I assure him of an enthusiastic welcome.

"Carson City," just above Johnstown, though it has few houses as yet, aspires to be the emporium of the new Gold Region, and perhaps of the embryo State of Nevada; but Genoa, ten or fifteen miles further up, is the present emporium, though a village of but forty or fifty houses. Here a Convention had been in session for a fortnight and had completed a Constitution for the aforesaid embryo State of Nevada only the night before our arrival. We met some of the delegates bound homeward. Said State is to comprise the western half (very nearly) of Utah, with (I believe) a small strip of eastern California. California may object to this; but I trust progress will organize at least the Territory of Nevada at an early day. It is an established fact that a division of power between Mormons and Gentiles seldom works harmoniously; but in Utah there is no division—the Mormons have all. The people of Carson Valley, and of Western Utah generally,

are not Mormons; the Legislation of Utah is unaltered and unacceptable to them; they desire to be set off, and I trust they soon may be. Though few in numbers as yet, they are rapidly increasing, and will soon possess all the elements of a State.

I had previously seen some beautiful valleys, but I place none of these ahead of Carson. I judge that portion of it already in good part under cultivation—about thirty miles long by ten to fifteen wide—an area destined to be largely increased, as I have already indicated.—This valley, originally a grand meadow, the home of the deer and the antelope, is nearly inclosed by high mountains, down which, especially from the north and west, come innumerable rivulets, leaping and dancing on their way to form or join the Carson. Easily arrested and controlled, because of the extreme shallowness of their beds, these streams have been made to irrigate a large portion of the upper valley, producing an abundance of sweetest Grass and insuring bounteous harvests of Vegetables, Barley, Oats, &c. Wheat seems to do fairly here; Corn not so well; in fact, the nights are too cold for it if the water were not. For this spring water, leaping suddenly down from its mountain sources, is too cold, too pure, to be adapted to irrigation; could it be held back even a week, and exposed in shallow ponds or basins to the sun-shine, it would be vastly more useful.—When the whole river shall have been made available, twenty to forty miles below, it will prove far more nutritious and fertilizing.

Genoa stands on the narrow bush or slope of hard granite gravel which intervenes between the mountains and the valley, with half a dozen rivulets running through it to fructify the fields and gardens below. Just behind it is the steep ascent of the mountain, its very soil formed of white, pulverized granite, gloriously covered with fragrant and graceful pines. As these steep acclivities are absolutely worthless for any other end than tree growing, I entreat the people of Genoa to take care of these woods, and not let their place be shorn of half its beauty merely to save a mile or so in the hauling of fuel. I may never see this lovely valley again—it is hardly probable that I ever shall—but its beauty, its seclusion, its quiet, the brightness of its abundant rivulets, the grandeur of its inclosing mountains, the grace and emerald verdure of their verdure of pines, have graven themselves on my memory with a vividness and force which only he who has passed weary weeks on some great, shadeless, verdureless desert can fully realize.

—We stopped but to dine in Genoa, then reconnoitered the residue of the daylight by pressing on 15 miles to the point at which the California road enters the mountains by the side of the largest of the brooks which unite to form the Carson. Here we halted at a fair two-story house, the first one I had entered with a hope of resting in it since I left Salt Lake City. We had beds here—actual beds, and good ones—our first since Camp Floyd. Though our night was not a long one, for we were to start again by 4 a. m., I reckon good use was made of it by the four through passengers, who had not lain down before since they left Shell Creek, five days ago, and nearly 500 miles away. My own slumber was partial and broken, as it generally is; but the bath which preceded and prepared for it was a genuine refreshment, and the sleep seemed quite sufficient. In fact, I felt that I could have gone without for another week, and felt less inconvenience than I did the first night we rode and the day after.

We were in motion again at the earliest dawn, for we had still about 75 miles of rugged mountain road to traverse before reaching this place. The Carson side of the road is not yet half made, while the half next to this place is in the main good. But in fact, the expense of a good highway up the eastern slope of the Sierra must be a heavy one. For that slope is composed of granite—simple, naked rock—with scarcely a fraction of its surface thinly covered by soil. Of course, no trees but evergreens can live—a very few small Quaking Aspens in the bottoms of the ravines scarcely form an exception—while almost every road is covered by giant, glorious Pines. I saw Sugar and Yellow Pines at least eight feet in diameter and tall in proportion; I am assured that one was recently cut near this road which measured eight feet across at a height of eighty feet from the ground, and from which two hundred and forty thousand shingles were made. Beside these universal Pines, there are giant Cedars, Balsam Firs, and some Redwood, after we cross the summit, we found also Oaks, which gradually increased in size and number as we descended. I think I saw Oaks (the prevalent California species is much like our White Oak) at least four feet through—in short, I never saw anything like so much nor so good timber in the course of any seventy-five miles' travel as I saw in crossing the Sierra Nevada. How greatly blest California is in this abundance, I need not say.

—The road over this pass—by far the lowest and most practicable of any over the Sierra Nevada—rises steadily for twelve or thirteen miles from our morning's starting-point, then descends for two or three miles as abruptly to the valley

of a brook which runs north into Lake Bigler, which in turn finds an outlet into Truckee River, whereby its waters are borne eastward into the desert and there dissipated. There is fine grass on Lake Bigler, and several hundred cows are kept there in Summer, making butter for the California market. When snow falls, these cattle are driven down to the valley of the Sacramento, where the rains are now commencing, and they here live without hay till June, when they are taken back to the mountains again, where only is butter made from them. The business is very lucrative, the land costing nothing and being unfenced. Taking into account gold, timber, and grass, the Sierra Nevada is probably the richest and most productive mountain-chain on earth.

—From the vally aforesaid, we rose again for two miles, along a narrow road out into the side of a mountain, with a precipitous descent on the right. Then we began to descend one more, beside a rivulet which leaped and laughed on its way to the Pacific. The ascent from the Carson side is far shorter than the descent this way, Carson Valley being much higher than that of the Sacramento. But the road, even on this side, is, for most of the way, eaten into the side of a steep mountain, with a precipice of from five to fifteen hundred feet on one side and as steep an eminence on the other. Yet along this mere shelf, with hardly a place to each mile where two meeting wagons can pass, the mailstage was driven at the rate of ten miles an hour (in one instance eleven), or just as fast as four wild California horses, whom two men could scarcely harness, could draw it. Our driver was of course skillful; but had he met a wagon suddenly on rounding one of the sharp points or projections we were constantly passing, a fearful crash was unavoidable. Had his horses seen fit to run away (as they did run once, on the unhooking of a trace, but at a place where he had room to rein them out of the road on the upper side, and thus stop them) I know that he could not have held them, and we might have pitched headlong down a precipice of a thousand feet, where all of the concern that could have been picked up afterward would not have been worth two bits per wheel. Yet at this break-neck rate we were driven for not less than four hours or forty miles, changing horses every ten or fifteen, and raising a cloud of dust through which it was difficult at times to see anything. We crossed the south fork of the American River eighteen miles above this, rising two or three miles immediately after to the summit of the ridge south, and thenceforward the road nearly to this city, descends steadily a beautifully inclined ridge, and, but for the dust, would be one of the finest drives on earth. And right glad was I to find myself once more among friends, surrounded by the comforts of civilization, and with a prospect of occasional rest.—I cannot conscientiously recommend the route I have traveled to Summer tourists in quest of pleasure, but it is a balm for many bruises to know that I am at last in California.

## XXVIII.

California Mines and Mining.

SACRAMENTO, Aug. 7, 1859.

I have spent the last week mainly among the mines and miners of Eldorado, Placer, and Nevada Counties, in the heart of the gold producing region. There may be richer "diggings" north or south, but I believe no other three counties lying together have yielded in the aggregate, or are now producing, so much gold as those I have named. Of course, I have not even been within sight of more than a fraction of the mines or placers of these counties, while I have not carefully studied even one of them; and yet the little information I have been able to glean in the intervals of traveling, friendly greeting, and occasional speech-making, may have some value for those whose ignorance on the subject is even more dense than mine.

The three counties I have named lie near the center of the State, at the base of the Sierra Nevada, between those mountains on the east and the valleys of the Sacramento and the West. They are rugged in formation, being composed of innumerable hills (mainly spurs of the great chain), separated by narrow valleys, usually descending to the west, and gradually opening out into the broad rich valley of the Sacramento. The three branches or "forks" of the American and those of the Yuba River come brawling down from the Sierra Nevada through very deep, narrow valleys or canons, and unite respectively to run a very short course less rapidly ere they are lost in the Sacramento—the Yuba having previously formed a junction with the Feather. "Bear River," "Wolf Creek," "Dear Creek," &c., are the names of still smaller streams, taking their rise among the foot hills, and running a short course into some fork of the American or Yuba, their scanty waters, with a good portion of those of the rivers aforesaid, being mainly drawn off into canals or "ditches," as they are inaccurately termed, by which the needful fluid is supplied to the miners.

## THE CANALS.

These canals are a striking characteristic of the entire mining region. As you traverse a wild and broken district, perhaps miles from any human habitation or sign of present husbandry, they intersect

your dusty, indifferent road, or are carried in flames supported by a frame-work of timber twenty to sixty feet over your head. Some of these flumes or open aqueducts are carried across valleys each a mile or more in width; I have seen two of them thus crossing side by side. The canals range from ten to sixty or eighty miles in length, and are filled by damming the streams wherefrom they are severally fed, and taking out their water in a wide trench, which runs along the side of one bank, gradually gaining comparative altitude as the stream by its side falls lower in its canon, until it is at length on the crest of the headland or mountain promontory which projects into the plain and may be conducted down either side of it in any direction deemed desirable. I think several of these canals have cost nearly or quite half a million dollars each, having been enlarged and improved from year to year, as circumstances dictated and means could be obtained. One of them, originally constructed in defiance of sanguine prophecies of failure, returned to its owners the entire cost of its construction within three months from the date of its completion. Then it was found necessary to enlarge and every way to improve it, and every dollar of net earnings for the next four years was devoted to its perfection. In some instances, the projectors exhausted their own means and then resorted to borrowing on mortgage at California rates of interest; I believe nearly or quite every such experiment resulted in absolute bankruptcy and the profligate companies have turned their attention to damming the outlets of the little lakes which fill the hollows of the Sierra, in order to hold back the superabundant waters of the Spring months for use in Summer and Autumn. This course is doubly beneficial, in that it diminishes the danger from floods to which this city is specially subject, but which is also serious in all the valleys or canons of the Mining region wherein there is anything that water can injure. I judge that the cost and present cash value of these mining canals throughout California must be many millions of dollars, paying in the average a fair income, while their supply of water is at this season, and from July to November, utterly inadequate.—Water is sold by them by the cubic inch—a stream four inches deep and six wide, for instance, being twenty-four inches, for which fifty cents per inch, twelve dollars per day must be paid by the taker. A head of six inches—that is, six inches' depth of water in the flume above the top of the aperture through which the water escapes into the miners' private ditch or flume—is usually allowed. The price per day ranges from twenty cents to one dollar per inch, though I think it now seldom reaches the higher figure, which was once common. Were the supply twice as copious as it is, I presume it would all be required; if the price were some what lowered by the increase, I am sure it would be. Many works are now standing idle solely for want of water.

## THE MINES.

Go where you will in the Mining region, you are seldom a mile distant from past or present "diggings." Speaking generally, every ravine, gully, or water-course has been prospected; every one at some point dug open to the "bed-rock," and the overlying earth or gravel run through a "rocker," "tom" or "sluice," in the hope of making it yield the shining dust. Many of these water courses have been deeply and widely dug up for miles in extent. If any are left entirely undisturbed, the presumption is strong that the subjacent rock is so near the surface that gold has had no chance to deposit itself thereon. In some instances, basins or depressions in the rock have been gradually filled up with earth—probably auriferous—through thousands of years, and the gold which might otherwise have been strewn down the valley for miles is here collected, so that it would be sheer waste to mine throughout these miles. But the more general opinion seems to be that gold is diffused throughout the soil of the entire Mining region, especially upon and just above the surface of the bed-rock, though only in certain localities is it sufficiently abundant to justify efforts to extract it. I find no one seeming to cherish any apprehensions that California will cease to produce gold abundantly, at least within the next quarter of a century.—On the contrary, the current belief seems to be that the influx of population will in time so reduce the wages of labor, or the progress of invention and discovery so increase its efficiency, that extensive districts will ultimately be mined with profit which are now necessarily avoided. If the amount of available water were doubled, with a considerable reduction of price, the Gold product of California would thereupon be increased several millions per annum. At present, Mining enterprises of considerable promise and indefinite magnitude remain in abeyance, simply because the price of labor, the rate of interest, and other elements of the cost of Mining, are deemed too high to justify their prosecution.

## MODES OF MINING.

In the course of a week's travel through a portion of the Mining district, I did not see a single miner engaged with pick and pan in prospecting. Higher up in the mountains, or further to the north, I might have found such. Nor do I remember having seen white men, save, perhaps in a single instance, engaged in digging

and washing the gravel or earth in the bed of any water course, whether river, creek or dry gulch. But Chinese bands of six to twelve were often hard at work in these water-courses—Bear River, the south fork of the Yuba, &c.—digging and washing, with rocker, sluice, and a sort of wheel-and-flume arrangement, which I did not get the hang of.

The Chinese are hardly used here. In the first place, they are taxed four dollars each per month for the naked privilege of mining at all. Next, they are not allowed to mine anywhere but in diggings which white men have worked out and abandoned, or which no white man considers worth working. Thirdly, if these rejected diggings happen, in Chinese hands, to prove better than their reputation, and to begin yielding liberally a mob of white sovereigns soon drives the Chinese out of them, neck and heels. "John" does not seem to be a very bad fellow, but he is treated worse than though he were. He is not malignant nor sanguinary, and seldom harms any but his own tribe. But he is thoroughly sensual, intent on the fullest gratification of his carnal appetites, and on nothing else. He eats and drinks the best he can get, and as much as he can hold; but he is never so devoid of self-respect as to be seen drunk in a public place; even for an opium debauch, he secludes himself where none but a friendly eye can reach him. His "particular vanity" in the eating line is Rice, whereof he will have the best only if the best is to be had; he likes a fat chicken also, and will pay his last dollar for one rather than go without. Lacking the dollar, it is charged that he will rob hen-roosts; at all events, hen-roosts are sometimes robbed, and "John" has to bear the blame. He is popularly held to spend nothing, but carry all his gains out of the country and home to his native land—a charge disproved by the fact that he is an inveterate gambler, an opium smoker, a habitual rum drinker, and a devotee of every sensual vice. But he is weak in body and not allowed to vote, so it is safe to trample on him; he does not write English, and so cannot tell the story of his wrongs; he has no family here (the few Chinese women brought to this country being utterly shameless and abandoned), so that he forms no domestic ties, and enjoys no social standing. Even the wretched Indians of California repel with scorn the suggestion that there is any kinship between their race and the Chinese. "John" has traits which I can neither praise nor justify; yet I suspect that, if other men's faults were punished as severely as his, a good many Californians would be less comfortable than they are.

—As to Quartz-Mining—or the reduction to powder of the vein-stone wherein gold is contained, and the extraction of the gold from the powder, by means of water, quicksilver, &c.—I judge that the time has not even yet arrived for its profitable prosecution. There are conspicuous instances of its success, that of the concern as "Allison's Rancho," in Grass Valley, for example—but I am confident that fully three out of every four quartz-mining enterprises have proved failures, or have at best achieved no positive success. The current estimates of the yield of gold by quartz rock are grossly exaggerated. I judge that the average yield of gold by quartz vein-stone is less than twenty dollars per ton—barely one cent per pound—and that this yield will not pay the average cost of sinking shafts, running drifts or adits, pumping out water, raising ore (and an immense aggregate of dead rock with it), crushing it, and extracting the gold, in a country where common labor costs \$2½ to \$3 per day. At \$40 per ton of vein-stone, quartz mining might pay; but where one vein yields \$40 per ton, there are many which yield less than \$20. There are some instances of profitable quartz-mining by men on the spot who thoroughly understand their business; but I have not heard of an instance in which money has been invested in quartz-mining, by persons out of California, who have not lost every farthing of it.

I think the most popular form of Mining at present is that of sinking or drifting into hills which have a stratum of gravel at or near their base, directly overlying the bed-rock. Many of these hills would seem to have been piled, in some far-off, antediluvian period, upon a bed or basin of solid granite, which often hollows or dips toward its center like a saucer. If, then, a tunnel can be run in through the "rim rock" or side of this saucer so happily as to strike the level of the bottom, thereby draining off the water, and affording the utmost facility for extracting the gold-bearing gravel, the fortune of the operator may be made by one lucky, or better than lucky, operation.—In a few instances, these subterranean gravel basins would seem to have formed parts of the beds of ancient rivers, and so to be extraordinarily rich in the precious dust. In some cases, the "pay dirt" is hauled by steam up an inclined plane, or even raised perpendicularly by wind-lifts, but it is easier to extract it by a horizontal drift or tunnel, wherever possible. Many mines of this order are worked night and day on the "three-shift" plan, and are paying very handsomely.

But the newest, most efficient, most uniformly profitable mode of operation is that termed Hydraulic Mining—that is, the washing down and washing away of large deposits of auriferous earth by means

of a current of water so directed as to fall on the right spot, or (better still) projected through a hose and pipe with the force generated by a heavy fall. The former of these methods is exhibited in perfection at Nevada, the latter at North San Juan, near the middle fork of the Yuba, streams at least three inches in diameter, and probably containing twenty measured inches of water are directed against the remaining half of a high hill, which they strike with such force that boulders of the size of canon balls are started from their beds and hurled five to ten feet into the air. By this process, one man will wash away a bank of earth like a haystack sooner than a hundred men could do it by old-fashioned sluicing. I believe earth yielding a bare cent's worth of gold to the pan may be profitably washed by this process, paying a reasonable price for the water. As much as \$100 per day is profitably paid for the water thrown through one pipe. The stream thus thrown will knock a man as lifeless as though it were a grape-shot.—As the bank, over a hundred feet high, is undermining by the battery, it frequently caves from the top downward, reaching and burying the careless operator. Three men have thus been killed at San Juan within the last month, until at length greater caution is exercised, and the operator stands twice as far away as he formerly did. Very long sluices—as long as five miles—have been discharged water away; and I am told that it is no matter how thick with earth the water may run, provided the sluice be long enough. It is of course so arranged as to present riffles, crevices, &c., to arrest the gold at first borne along by the turbid flood. I believe there are companies operating by this method whose gross receipts from a single sluice have reached a thousand dollars per day.

—One of the novelties (to me) of this region is the presence of soft granite—putty granite, if I may coin a name for it. Unlike most soft rocks, this seems not to harden by exposure to the atmosphere.—It is found at various depths, and I know no way of accounting for it. It seems to me that one-fourth of the granite I saw at the base of recent excavations appeared soft as cheese. Is not this peculiar to California.

—Mining is a necessary art, but it does not tend to beautify the face of Nature. On the contrary earth distorted into all manner of ungainly heaps and ridges, hills half torn or washed away, and the re-licue left in as repulsive shape as can well be conceived, roads intersected and often turned to mire by ditches, water-courses torn up and gouged out, and rivers, once pure as crystal, now dense and opaque with pulverized rock—such is the spectacle presented throughout the Mining region. Not a stream of any size is allowed to escape the pollution—even the bountiful and naturally pure Sacramento is yellow with it, and flows turbid and uninviting to the Pacific. The people of this City have to drink it, nevertheless.) Despite the intense heat and drouth always prevalent at this season, the country is full of springs, which are bright and clear as need be; but wherever three or four of these have joined to form a little rivulet, some gold seeker is sharp on their track, converting them into liquid mud. Californians, in giving up her hoarded wealth, surrenders much of her beauty also.

Worse still is the general devastation of Timber. The whole Mining region appears to have been excellently timbered—so much of it as I have traversed was eminently so. Yellow, Pitch, and Sugar (White) Pine (and what is here called Pitch Pine is a large tall and graceful tree), White, Black, and Live Oak, with stately Cedars, once overspread the whole country, not densely, as in Eastern forests, but with reasonable "spaces" between the noble trunks—the Oaks often presenting the general appearance of a thrifty Apple Orchard, undergrown with grass and bushes. But timber is wanted for flumes, for drifts or tunnels, for dwellings, for running steam engines, and as the land has no owner, every body cuts and slashes as if he cared for nobody but himself, and no time but to-day. Patriarchal Oaks are cut down merely to convert their limbs into fuel, leaving the trunks to rot; noble Pines are pitched this way and that, merely to take a log or two from the butt for sawing or splitting, leaving the residue a lumberer of the ground; trees fit for the noblest uses are made to subserve the paltriest, merely because they are handy, and it is nobody's business to preserve them. There was timber enough here ten years ago to satisfy every legitimate need for a century; yet ten years more will not elapse before the miners will be sending far up into the mountains at a heavy cost for logs that might still have been abundant at their doors had the timber of this region been husbanded as it ought. Remon-tranco were idle, but I must be permitted to deplore.

—I devote the coming week to a visit to Col. Fremont and his works in Bear Valley; and to trip to the famous cascade in the Yosemite Valley, with a look at the Big Trees of Mariposa (not the biggest of all, are in Calaveras) by the way, I leave San Francisco and vicinity for the last.

HORACE GREELY.

If the State of Missouri is 318 miles long from east to west, and 278 broad from north to south. It contains 67,860 square miles.